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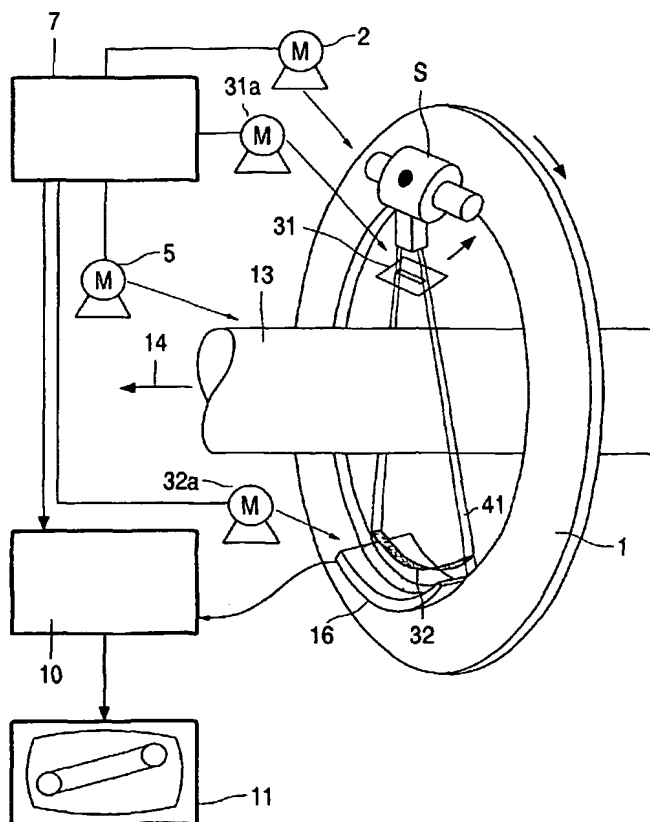
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(54) Title: **COMPUTED TOMOGRAPHY APPARATUS**



(57) Abstract: The invention relates to a computed tomography apparatus (CT apparatus) for imaging by means of radiation having traversed an object to be examined (that is, directly transmitted radiation), as well as by means of radiation scattered by the object to be examined, which apparatus includes a radiation source (S), a detector arrangement (16) and a device whereby the radiation (41a) having traversed the object to be examined can be blocked at least to an extent that the intensity incident on the detector arrangement (16) does not substantially exceed the intensity of radiation (41b) scattered by the object (13) to be examined and incident on the detector arrangement (16). The invention enables the detection of scattered radiation (CSCT mode) which is not affected by crosstalk from the transmitted radiation, even when the detector arrangement does not satisfy severe requirements as regards crosstalk properties and/or is configured as a single-row detector arrangement.

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A. CLASSIFICATION OF SUBJECT MATTER

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According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 A61B G21K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

WPI Data, EPO-Internal, INSPEC

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 98 49939 A (KOMARDIN OLEG; LAZAREV PAVEL (US); QUANTA VISION (US)) 12 November 1998 (1998-11-12) page 11, line 8 - line 13 page 12, line 5 - line 12 page 13, line 1 - line 15 page 17, line 23 - page 18, line 1 page 24, line 13 - line 17 ----	1-8
X	EP 1 062 914 A (QUANTA VISION INC) 27 December 2000 (2000-12-27) paragraph '0001! column 12, line 26 - line 29 paragraphs '0041!, '0042! ----	1-4, 6-8
P, X	DE 101 27 267 A (SIEMENS AG) 19 December 2002 (2002-12-19) paragraphs '0027!, '0033!, '0034! ----- -/-	1-7

☒ Further documents are listed in the continuation of box C:☒ Patent family members are listed in annex:

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	<p>STONESTROM J P ET AL: "Scatter considerations in fan beam computerized tomographic systems"</p> <p>IEEE TRANSACTIONS ON NUCLEAR SCIENCE, OCT. 1976, USA,</p> <p>vol. ns-23, no. 5, pages 1453-1458, XP002258471</p> <p>ISSN: 0018-9499</p> <p>page 1457, right-hand column</p> <p>figures 6A, 6B.</p>	1-4, 6
A	<p>US 2 549 987 A (HAMACHER EDWARD A ET AL)</p> <p>24 April 1951 (1951-04-24)</p> <p>figure 1</p>	1, 9

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
WO 9849939	A	12-11-1998	RU 2137114 C1 US 6054712 A AU 7368798 A EP 0983020 A1 JP 2001524011 T WO 9849939 A1 US 6175117 B1	10-09-1999 25-04-2000 27-11-1998 08-03-2000 27-11-2001 12-11-1998 16-01-2001
EP 1062914	A	27-12-2000	RU 2145485 C1 AU 3280499 A EP 1062914 A1 JP 2002505903 T WO 9945843 A1	20-02-2000 27-09-1999 27-12-2000 26-02-2002 16-09-1999
DE 10127267	A	19-12-2002	DE 10127267 A1	19-12-2002
US 2549987	A	24-04-1951	BE 488126 A CH 272092 A FR 983754 A GB 660703 A NL 72976 C NL 145607 B	30-11-1950 27-06-1951 14-11-1951